

CLAIMS

1. A method for forming a powder molding product by filling a molding portion formed in a mold body with a raw powder and then fitting punches into the molding portion, which is characterized in that applying an aqueous solution obtained by dissolving a water soluble lubricant having at least 3g of solubility for 100 g of water at 20°C in water to the molding portion prior to filling the molding portion with a raw powder, and evaporating the aqueous solution to form a crystallized layer on the surface of the molding portion.

2. The method for forming a powder molding product according to claim 1, which is characterized in that said lubricant is an oxo-acid based metal salt.

3. The method for forming a powder molding product according to claim 1, which is characterized in that said lubricant is phosphate metal salt, sulfate metal salt, borate metal salt, silicate metal salt, tungstate metal salt, organic acid based metal salt, nitrate metal salt or carbonate metal salt.

4. The method for forming a powder molding product according to claim 3, which is characterized in that said

lubricant is dipotassium hydrogen phosphate, disodium hydrogen phosphate, tripotassium phosphate, trisodium phosphate, potassium polyphosphate, sodium polyphosphate, riboflavin potassium phosphate and riboflavin sodium phosphate.

5. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium sulfate, sodium sulfate, potassium sulfite, sodium sulfite, potassium thiosulfate, sodium thiosulfate, potassium dodecyl sulfate, sodium dodecyl sulfate, potassium dodecyl benzen sulfate, sodium dodecyl benzene sulfate, Food Blue No.1., Food Yellow No.5., potassium ascorbyl sulfate ester and sodium ascorbyl sulfate ester.

6. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium tetraborate or sodium tetraborate.

7. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium silicate or sodium silicate.

8. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium tungstate or sodium tungstate.

9. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium acetate, sodium acetate, potassium benzoate, sodium benzoate, dipotassium terephthalate, disodium terephthalate, potassium ascorbate, or sodium ascorbate.

10. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium nitrate or sodium nitrate.

11. The method for forming a powder molding product according to claim 3, which is characterized in that said lubricant is potassium carbonate, sodium carbonate, potassium hydrogen carbonate or sodium hydrogen carbonate.

12. The method for forming a powder molding product according to claim 1, which is characterized in that said lubricant uses at least one or two lubricants described in claims 2 to 11.

13. The method for forming a powder molding product according to claims 2 to 12, which is characterized in that said aqueous solution is the one in which said water solu-

ble lubricant is completely dissolved in water to have a concentration greater than or equal to 0.01 % by weight concentration but less saturated concentration.

14. The method for forming a powder molding product according to claim 13, which is characterized in that the lubricant is potassium salt or sodium salt.

15. The method for forming a powder molding product according to any one of claims 2 to 14, which is characterized in that an antiseptic substance is added into said lubricant.

16. The method for forming a powder molding product according to any one of claims 2 to 15, which is characterized in that a defoaming agent is added into the lubricant.

17. The method for forming a powder molding product according to any one of claims 2 to 16, which is characterized in that water soluble solvent is added into the lubricant.

18. The method for forming a powder molding product according to claim 17, which is characterized in that said solvent is alcohol or ketone.

19. The method for forming a powder molding product according to any one of claims 2-18, which is characterized in that no halogen element is included in the lubricant.

20. A mold apparatus for powder molding, comprising: a mold body with a through-hole for forming a side of the powder molding product, a lower punch to be fitted into the through-hole from beneath, an upper punch to be fitted into the through-hole from above, a spray member from which a lubricant aqueous solution is faced into the through-hole, a heater provided around a molding portion of the powder molding product, the molding portion being defined by the through-hole and the lower punch which is fitted into the through-hole, a temperature control system keeping a temperature of the heater higher than an evaporating temperature of the aqueous solution, and an aqueous solution in which water soluble lubricant having at least 3g of solubility for 100 g of water at 20°C is dissolved in water, is provided in said spray member.

21. A mold apparatus for powder molding, comprising: a mold body with a through-hole for forming a side of the powder molding product, a lower punch to be fitted into the through-hole from beneath, an upper punch to be fitted into

the through-hole from above, a spray member from which a lubricant aqueous solution is faced into the through-hole, a heater provided around a molding portion of the powder molding product, the molding portion being defined by the through-hole and the lower punch which is fitted into the through-hole, a humidity control system keeping a temperature of the heater higher than an evaporating temperature of the aqueous solution, but lower than melting temperature of said lubricant, and an aqueous solution in which water soluble lubricant having at least 3g of solubility for 100 g of water at 20°C is dissolved in water, is provided in said spray member.